

I claim:

- 1 1. A surgical probe, comprising:
2 a relatively short shaft defining a distal region and a proximal
3 region;
4 a coagulation element defining a coagulation element
5 configuration on the distal region of the relatively short shaft; and
6 a stimulation element defining a stimulation element
7 configuration on the distal region of the relatively short shaft, the stimulation
8 element configuration being different than the coagulation element
9 configuration.
- 1 2. A surgical probe as claimed in claim 1, wherein the stimulation
2 element comprises a stimulation electrode.
- 1 3. A surgical probe as claimed in claim 2, wherein the coagulation
2 element comprises a coagulation electrode.
- 1 4. A surgical probe as claimed in claim 3, wherein the coagulation
2 electrode defines a coagulation electrode length, the stimulation electrode
3 defines a stimulation electrode length, and the coagulation electrode length is
4 greater than the stimulation electrode length.
- 1 5. A surgical probe as claimed in claim 1, wherein the stimulation
2 element comprises a stimulation electrode pair.
- 1 6. A surgical probe as claimed in claim 1, wherein the coagulation
2 element comprises at least two longitudinally spaced coagulation electrodes,
3 the respective size and spacing of the at least two coagulation electrodes
4 being such that simultaneous transmission of energy thereby to an indifferent
5 electrode will produce an area of coagulated tissue that spans the at least two
6 coagulation electrodes.

1 7. A surgical probe as claimed in claim 1, wherein the coagulation
2 element comprises a plurality of longitudinally spaced coagulation elements
3 and the stimulation element comprises a plurality of located between
4 respective pairs of adjacent coagulation elements.

1 8. A surgical probe as claimed in claim 1, wherein at least a portion
2 of the distal region of the relative short shaft is malleable.

1 9. A surgical probe as claimed in claim 1, further comprising:
2 a handle associated with the proximal region of the relatively
3 short shaft.

1 10. A surgical probe as claimed in claim 1, wherein the stimulation
2 element is located distally of the coagulation element.

1 11. A surgical method, comprising the steps of:
2 forming a lesion with a coagulation element on a distal region of
3 a relatively short shaft; and
4 applying stimulation energy to tissue with a stimulation element
5 on the distal region of the relatively short shaft after the step of forming a
6 lesion with a coagulation element.

1 12. A surgical method as claimed in claim 11, further comprising the
2 step of:
3 placing the distal region of the relatively short shaft directly
4 against tissue.

1 13. A surgical method as claimed in claim 11, further comprising the
2 steps of:
3 inserting a portion of the relatively short shaft into a patient by
4 way of an opening formed during one of a thoracotomy, median sternotomy,
5 or thoracostomy; and
6 placing the distal region of the relatively short shaft directly
7 against tissue.

1 14. A surgical method as claimed in claim 11, wherein the step of
2 forming a lesion comprises forming a lesion by transmitting coagulation
3 energy to tissue with an electrode on a distal region of a relatively short shaft.

1 15. A surgical method as claimed in claim 11, wherein the step of
2 applying stimulation energy to tissue comprises applying stimulation energy to
3 tissue on one side of the lesion with a stimulation element on the distal region
4 of the relatively short shaft, the method further comprising the step of:

5 monitoring tissue on the other side of the lesion to determine
6 whether the tissue stimulation produced a local activation on the other side of
7 the lesion.

1 16. A surgical method as claimed in claim 11, wherein the step of
2 applying stimulation energy to tissue comprises applying stimulation energy to
3 tissue within the lesion, the method further comprising the step of:

4 monitoring tissue in spaced relation to the lesion to determine
5 whether the tissue stimulation produced a local activation in spaced relation to
6 the lesion.

1 17. A surgical method as claimed in claim 16, further comprising the
2 step of:

3 selecting a predetermined stimulation energy level that
4 corresponds to tissue stimulation to a predetermined depth;

5 wherein the step of applying stimulation energy to tissue
6 comprises applying stimulation energy at the predetermined level to tissue
7 within the lesion.

1 18. A surgical method as claimed in claim 11, wherein the step of
2 applying stimulation energy to tissue comprises applying stimulation energy to
3 tissue with a stimulation element on the distal region of the relatively short
4 shaft after the step of forming a lesion with a coagulation element and without
5 substantially moving the relatively short shaft.

1 19. A surgical method as claimed in claim 11, wherein

2 the step of forming a forming a lesion comprises forming a
3 lesion with a two spaced coagulation elements on a distal region of a
4 relatively short shaft; and

5 the step of stimulating tissue comprises stimulating tissue with a
6 stimulation element between the coagulation elements after the step of
7 forming a lesion.

1 20. A surgical method, comprising the steps of:
2 forming a lesion with a coagulation element on a distal region of
3 a relatively short shaft; and
4 monitoring local tissue activation with an element on the distal
5 region of the relatively short shaft after the step of forming a lesion with a
6 coagulation element.

1 21. A surgical method as claimed in claim 20, wherein the step of
2 forming a lesion comprises forming a lesion that defines a perimeter around a
3 tissue region with a coagulation element on a distal region of a relatively short
4 shaft.

1 22. A surgical method as claimed in claim 21, wherein the step of
2 monitoring local tissue activation comprises monitoring local tissue activation
3 in within the tissue region with an element on the distal region of the relatively
4 short shaft.

1 23. A surgical method as claimed in claim 20, further comprising the
2 step of:
3 placing the distal region of the relatively short shaft directly
4 against tissue.

1 24. A surgical method as claimed in claim 20, further comprising the
2 steps of:
3 inserting a portion of the relatively short shaft into a patient by
4 way of an opening formed during one of a thoracotomy, median sternotomy,
5 or thoracostomy; and

6 placing the distal region of the relatively short shaft directly
7 against tissue.

1 25. A surgical method as claimed in claim 20, wherein the step of
2 forming a lesion comprises forming a lesion by transmitting coagulation
3 energy to tissue with an electrode on a distal region of a relatively short shaft.

1 26. A surgical method as claimed in claim 20, wherein the step of
2 monitoring local tissue activation comprises wherein the step of monitoring
3 local tissue activation with an electrode on the distal region of the relatively
4 short shaft.

1 27. A surgical system, comprising:
2 a source of coagulation energy;
3 a source of stimulation energy; and
4 a surgical probe, adapted to be operably connected to the
5 source of coagulation energy and the source of stimulation energy, including a
6 relatively short shaft defining a distal region and a proximal region, a
7 coagulation element defining a coagulation element configuration on the distal
8 region of the relatively short shaft, and a stimulation element defining a
9 stimulation element configuration on the distal region of the relatively short
10 shaft, the stimulation element configuration being different than the
11 coagulation element configuration.

1 28. A surgical system as claimed in claim 27, further comprising:
2 a coagulation energy line connected to the coagulation element
3 and to a coagulation energy connector configured to be connected to the
4 source of coagulation energy; and
5 a stimulation energy line connected to the stimulation element
6 and to a stimulation energy connector configured to be connected to the
7 source of stimulation energy.

1 29. A surgical system as claimed in claim 28, wherein the
2 coagulation energy connector and stimulation energy connector define
3 different configurations.

1 30. A surgical system as claimed in claim 28, further comprising:
2 a handle associated with the proximal region of the relatively
3 short shaft;
4 wherein the coagulation energy connector is carried by the
5 handle and the stimulation energy line extends through the handle.

1 31. A surgical system as claimed in claim 27, wherein the
2 stimulation element comprises a stimulation electrode.

1 32. A surgical system as claimed in claim 31, wherein the
2 coagulation element comprises a coagulation electrode.

1 33. A surgical system as claimed in claim 32, wherein the
2 coagulation electrode defines a coagulation electrode length, the stimulation
3 electrode defines a stimulation electrode length, and the coagulation electrode
4 length is greater than the stimulation electrode length.

1 34. A surgical system as claimed in claim 27, wherein the
2 coagulation element comprises at least two longitudinally spaced coagulation
3 electrodes, the respective size and spacing of the at least two coagulation
4 electrodes being such that simultaneous transmission of energy thereby to an
5 indifferent electrode will produce an area of coagulated tissue that spans the
6 at least two coagulation electrodes.

1 35. A surgical system as claimed in claim 27, wherein at least a
2 portion of the relative short shaft is malleable.

1 36. A surgical system as claimed in claim 27, wherein the source of
2 stimulation energy apparatus for monitoring electrical impulses sensed by the
3 stimulation element.

1 37. A surgical system as claimed in claim 27, wherein the
2 coagulation element comprises a plurality of longitudinally spaced coagulation
3 elements and the stimulation element comprises a plurality of located
4 between respective pairs of adjacent coagulation elements.

1 38. A surgical system as claimed in claim 27, wherein the
2 coagulation element comprises a pair of longitudinally spaced coagulation
3 elements and the stimulation element is located between the coagulation
4 elements.